Overview of HMIS in ART Care

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Scaling up ART interventions

- More than 5 million people in developing countries urgently need ARV therapy, but only 15% are under treatment (estimated mid of 2005)
- South Africa (est. end of 2004): 837,000 need therapy and only 62,000 (7%) under treatment
- How to scale up (from thousands to millions) one the most complex health interventions ever in history?

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Building blocks of ARV therapy scale-up

- Expanding access to HIV testing and counseling
- Improving access and integrating care and support services
- Integrating ARV therapy and tuberculosis programs
- Preventing MTC HIV transmission

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Building blocks of ARV therapy scale-up (cont)

- Training for professionals, community members and PLHA
- Providing drugs and logistics
- Developing systems for tracking and monitoring the people receiving treatment
- Institutionalizing OR to translate hard-won experience into evidence-based program design adapted to local conditions

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Condition for success in ART scale-up: strengthening health systems

- **Skilled health sector workforce**
- **Well managed and regular supply of drugs and other supplies**
- **Supervision systems**
- **Sound information systems**

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What are Health Information Systems (HIS) ?

"…systems that provide specific information support to the decision-making process at each level of an organization (or system)."

-Hurtubise 1984

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What makes HIS sound, i.e. “performing” ?

1. **Production of quality data**

2. **Information used in support of decision making at various levels**

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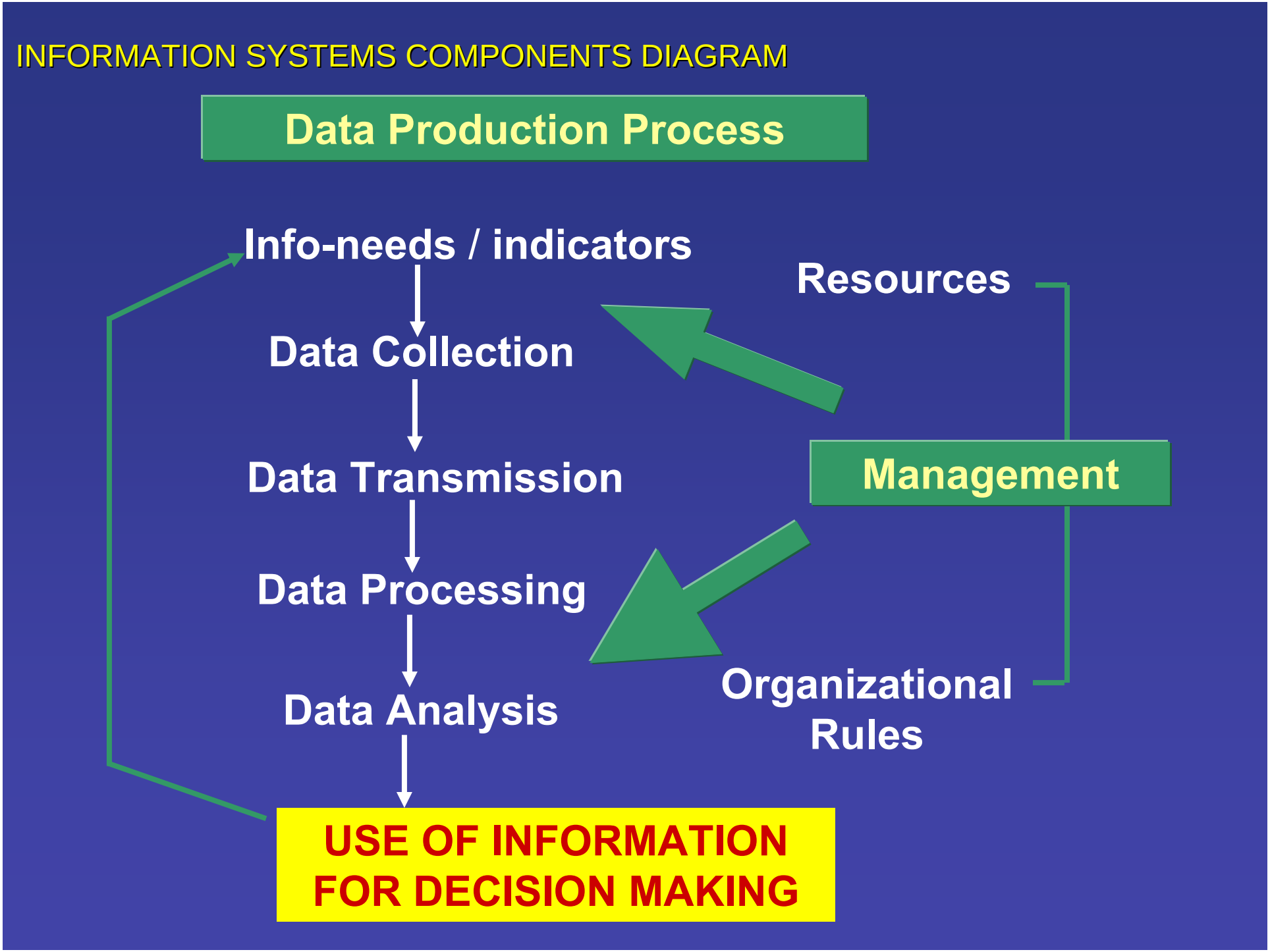
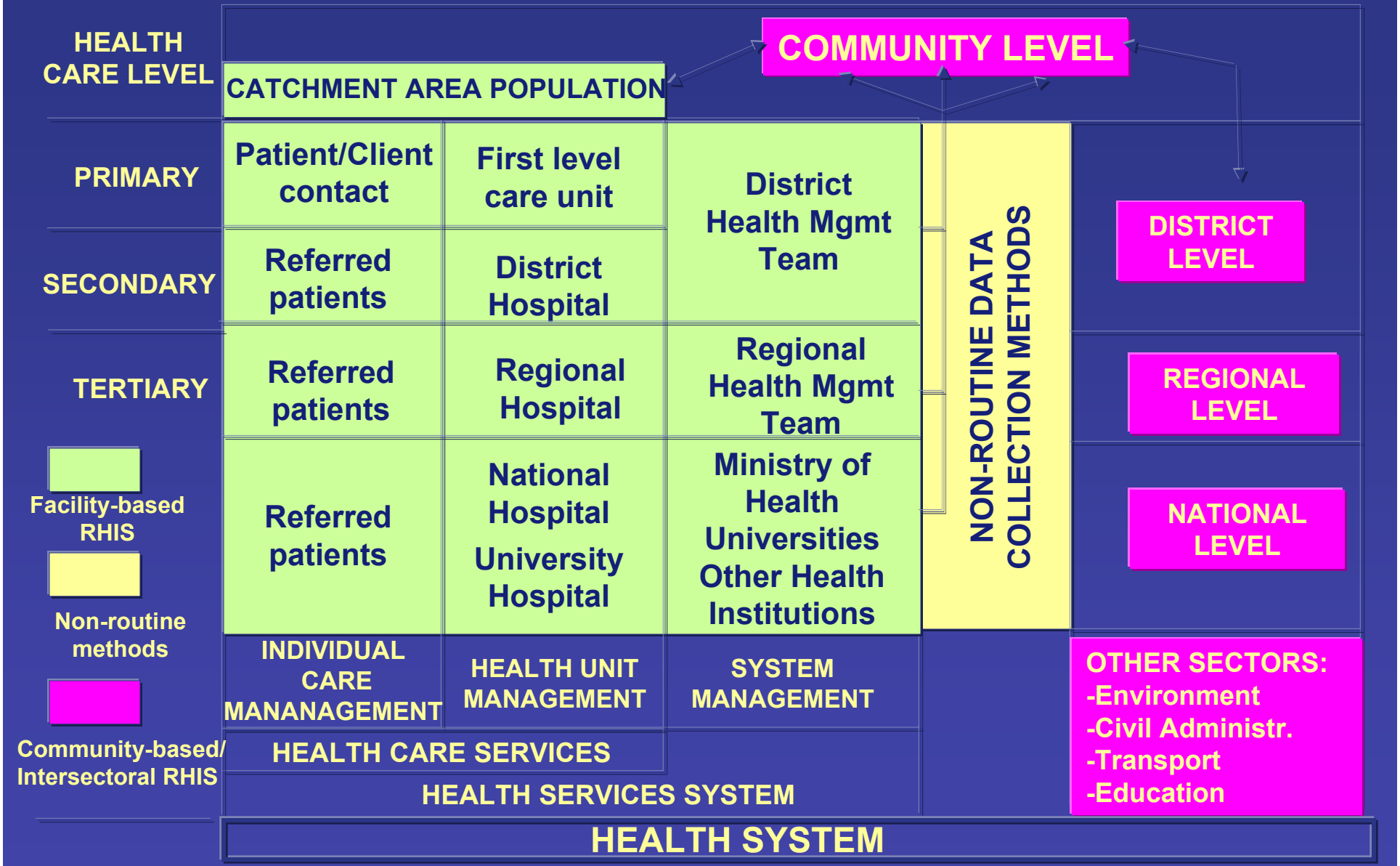
INFORMATION SYSTEMS COMPONENTS DIAGRAM



HIS in support of the Health System

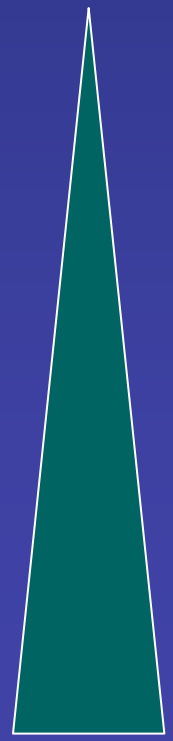


HIS in support of management functions at various levels of the health system

Mgmt Level	Functions (examples)	Indicators
Patient/Client	Provide quality care	Treatment according to standard
	Provide continuity of care	Missed appointment
Health Unit	Maintain adequate supply of ARV drugs	Number of stock-outs for ARV drugs
System (national – district)	Planning of care and preventive services	Total number of SDP providing care and prevention services

ART Data collection tools and information use at Various Levels of the Health Care System

Level of data collection	Data collection tools	Functions and information use
Global/ Regional	Global/regional summary report (e.g. COPRS)	Global program policies/strategies and planning (e.g. 3x5, PEPFAR)
National	National summary report (e.g. Datawarehouse)	Program policies/strategies and planning Reporting global/regional indicators
District	District summary report	Program planning & management Reporting national indicators
Facility	Facility registers, logbooks	Clinical team management of groups of patients, case review, audits, drug supply management Reporting district indicators
Patient	Patient card/record	Patient management



Core ART program indicators (district – national)

Core 1	Existence of national policies, strategy and guidelines for ART programmes
Core 2	Percentage of districts or local health administration units with at least one health facility providing ART services in line with national standards
Core 3	Percentage of ARV storage and delivery points experiencing stock-outs in the preceding 6 months
Core 4	Number of health workers trained on ART delivery in accordance with national or international standards
Core 5	Percentage of health facilities with systems and items to provide ART services
Core 6	Percentage of health facilities with ART services that also provide comprehensive care, including prevention services, for HIV-positive clients
Core 7	Percentage of people with advanced HIV infection receiving ARV combination therapy
Core 8	Continuation of first-line regimens at 6, 12 and 24 months after initiation
Core 9	Survival at 6, 12, 24, 36, etc. months after initiation of treatment

Other indicators for facility-level programme monitoring

Indicator	Rationale
a. Number on cotrimoxazole, fluconazole, INH prophylaxis at end of month	Drug supply orders
b. Distribution of entry points of patients enrolled in HIV care	Identifies linkages between programmes and activities
c. Distribution of reasons for regimen substitution, switching, termination, interruption, and poor adherence	Helps clinical team to identify and respond to poor adherence; assists with quality assurance related to regimen substitutions, switches and interruptions.
d. Distribution of patients not yet on ART by clinical stage	May help estimate resources to care for patients, drug supply for OI prophylaxis and treatment.
e. Percentage of patients referred	Monitoring referral rates may enable facilities to manage referral systems more efficiently
f. Side effects, OIs, other problems	Facilitates individual patient management and allows review of side effects and new OIs

Source: WHO/Geneva -ART team

Patient level data production and information use

- DATA PRODUCTION:
  - WHO/USG/UN guidelines: 87 minimum essential data elements
  - Patient records: paper-based or electronic
    - Based on guidelines standards
    - Include links with other programs (ANC, GM 0-4y, TB)
  - Laboratory records
  - Patient tracking system: EMR or tickler files allowing for follow-up actions (e.g. tickler file boxes)

- INFORMATION USE
  - Quality assurance (treatment guidelines)
  - Linkages with other HIV and PHC services
  - Continuity of care: messages, home visits, etc.
  - Data entry in ART register (29 items)

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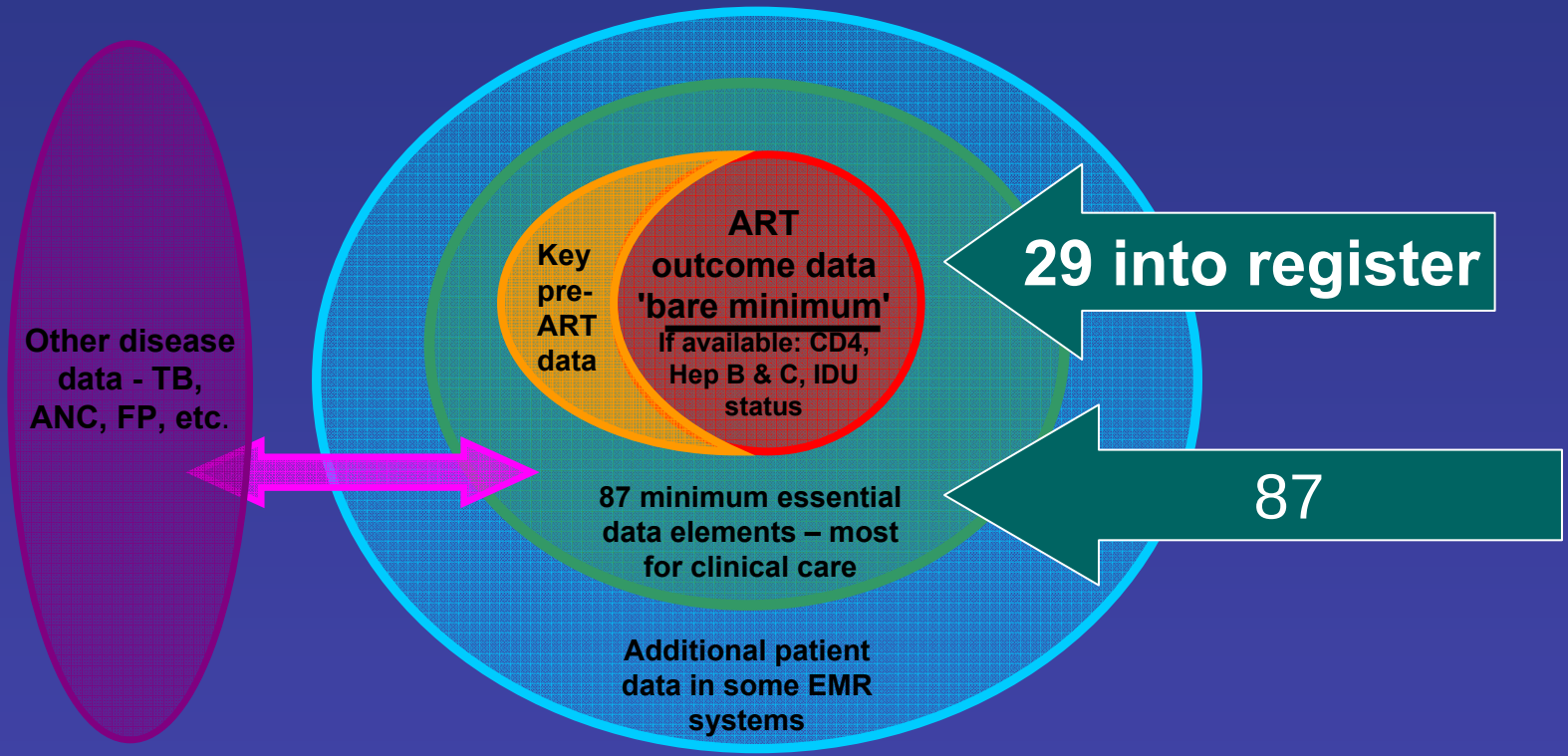
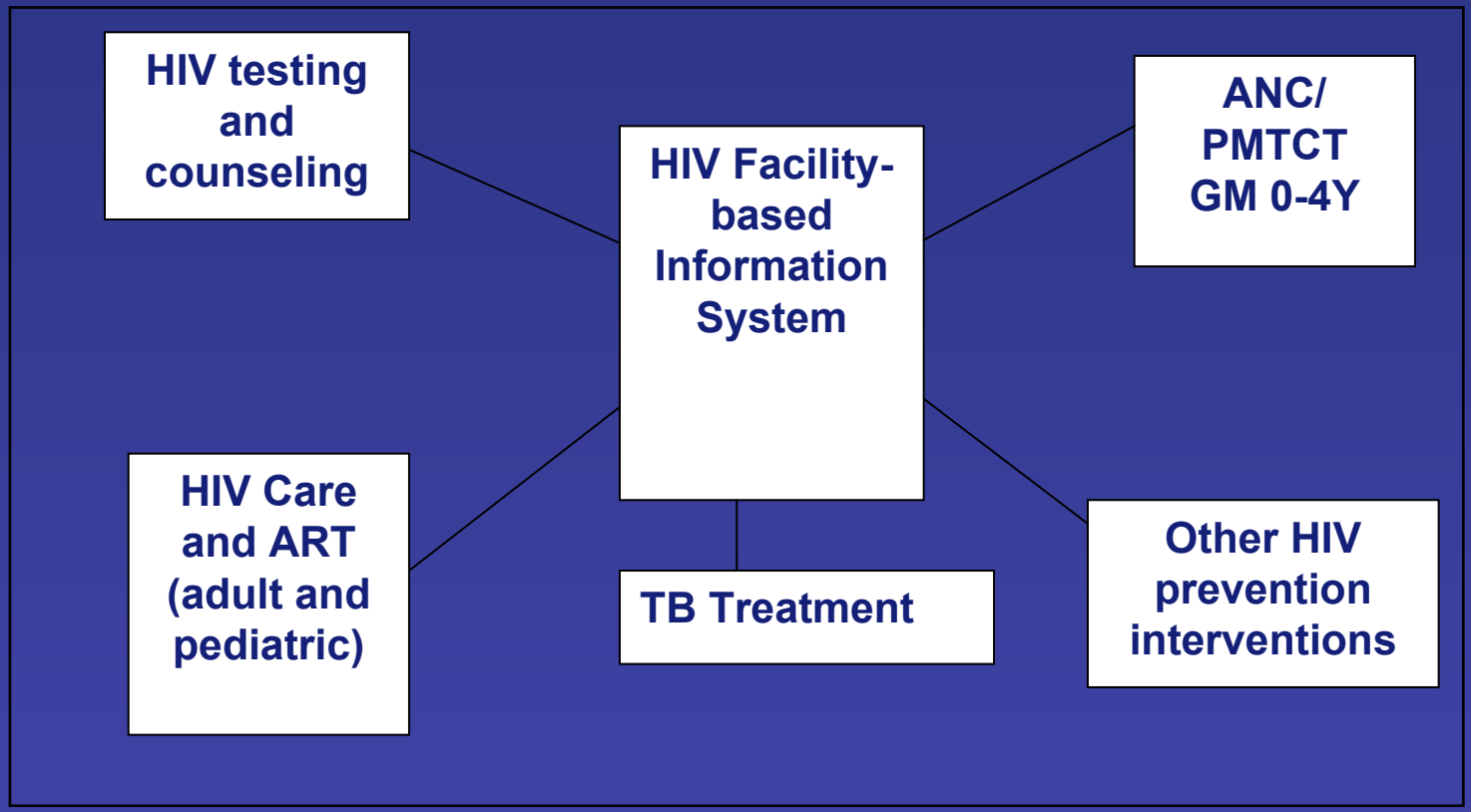
Different levels of patient monitoring data



Source: WHO/Geneva -ART team

Linkage with other HIV and PHC interventions



Source: WHO/Geneva -ART team

Facility level data production and information use

- DATA PRODUCTION:
  - Pre-ART Register or chronic disease register
  - ART register (paper or electronic)
  - LMIS records and/or registers
  - Cross-cutting and cohort analysis reports
- INFORMATION USE
  - ARV coverage and quality of care
  - Adherence
  - Resource management (staff, drugs, lab, etc.)
  - Reporting to higher levels

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Pre-ART Register (WHO)

Registration								Fill when applicapable							WHO Clinical Stage – insert date				ART						
Date enrolled in chronic HIV care	Patient clinic ID No.	NAME IN FULL Upper Space surname Lower Space given name	Age	Sex	***Address***	***Entry point***	Confirmed HIV+ date	***INH*** Start Date Stop Date	***CTX*** Start Date Stop Date	***Fluconazole*** Start Date Stop Date	***TB Rx*** Start Date Stop Date	***Preg Due Date, PMTCT link***	**If pt is DEAD before start ART, write DEAD and Date**	**LOST or Transfer Out (TO) before starting ART and Date**	1	2	3	4	Date medically eligible for ART	Clinical stage at start of ART	Why medically eligible	Date eligible & ready for ART	Date eligible, ready & selected by committee for ART	Date ART started transfer to ART register	Unique ART number
Information for one patient →																									

- Chronic care register v. acute care register
- Each row is one patient
- Lists ALL patients who enroll in HIV care
- Links with TB treatment and pregnancy

Source: WHO/Geneva - ART team

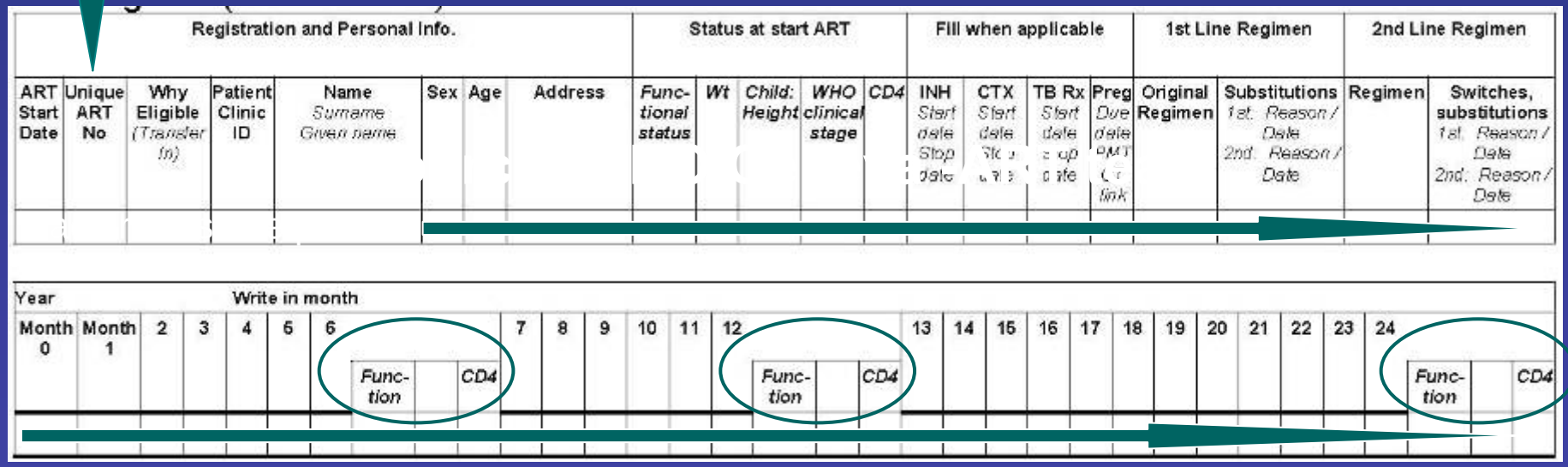
ART Register (WHO)

Unique patient ID

ART start-up groups based on month/year start ART in programme

Each page (A3-A3) has only *one* ART start-up group

COHORT: Year _____ Month _____ **ART Register 2004-2005**



Registration and Personal Info.								Status at start ART					Fill when applicable				1st Line Regimen		2nd Line Regimen	
ART Start Date	Unique ART No	Why Eligible *(Transfer in)*	Patient Clinic ID	Name *Surname Given name*	Sex	Age	Address	*Functional status*	*Wt*	*Child: Height*	*WHO clinical stage*	*CD4*	INH *Start date Stop date*	CTX *Start date*	TB Rx *Start date*	Preg *Due date PMT*	Original Regimen	Substitutions *1st. Reason / Date 2nd. Reason / Date*	Regimen	Switches, substitutions *1st. Reason / Date 2nd. Reason / Date*

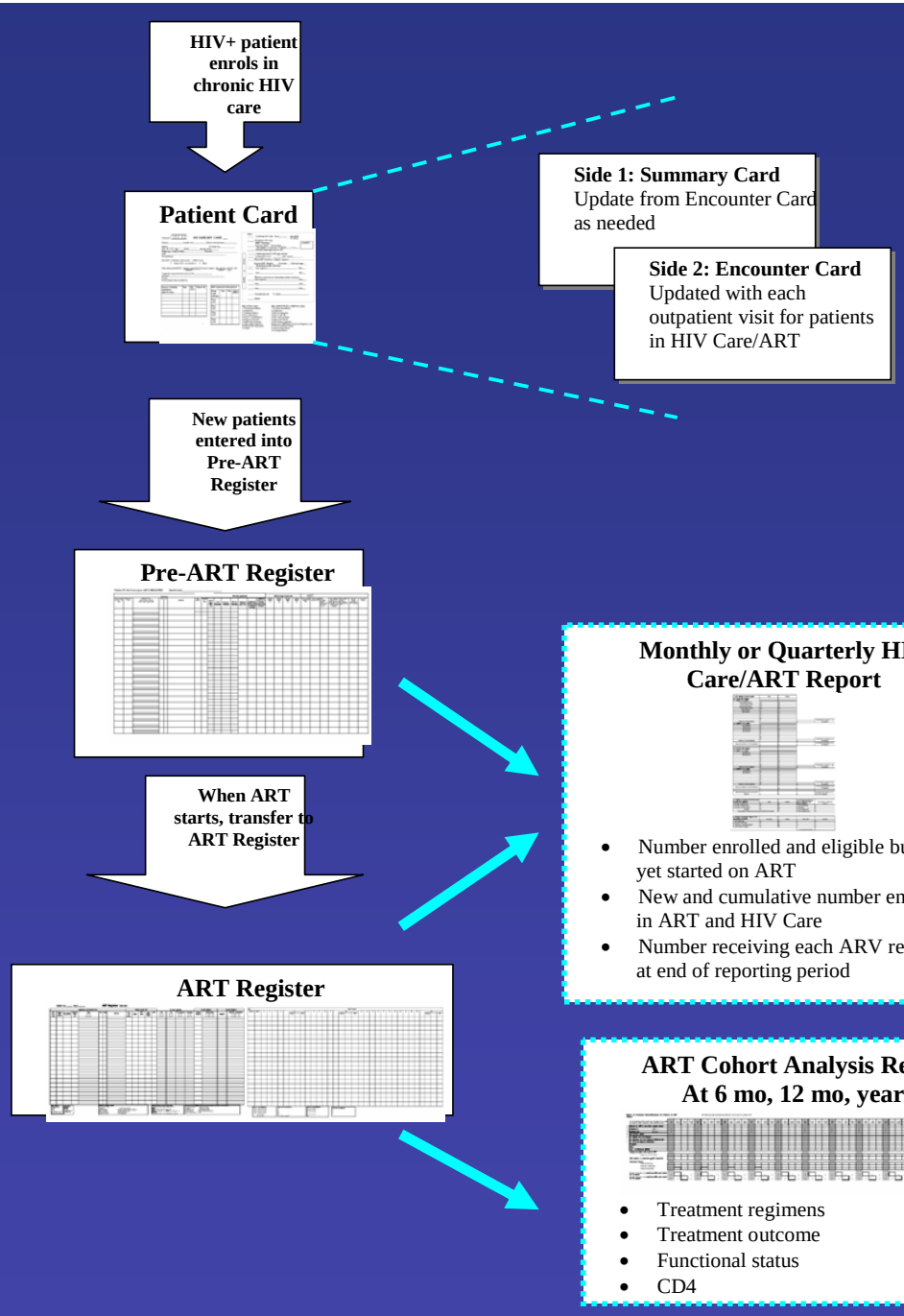
Year	Write in month																							
Month 0	Month 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
						Function *CD4*						*Function* *CD4*												*Function* *CD4*

Records patient status at 6, 12, 24, etc. months

Allows cohort analysis

Source: WHO/Geneva -ART team

Facility Data flow



Source: WHO/Geneva -ART team

Patient monitoring systems with variable paper to electronic transition

System type	Patient card or record	Registers	Quarterly cross-sectional and cohort reports	District coordinator and up
Electronic entry of reports	Paper	Paper	Paper	Paper → electronic
Electronic entry of registers	Paper	Paper → electronic	Electronic	Electronic
Electronic medical record (EMR) with electronic entry of paper records	Paper → electronic	Electronic or printed from electronic database	Electronic	Electronic
EMR with direct electronic entry without paper when managing patients	Electronic	Electronic Or n/a	Electronic	Electronic

Source: WHO/Geneva -ART team

District level data production and information use

- DATA PRODUCTION:
  - Data entry of CS and CH facility-based reports into district data-warehouse
  - District supervisory records
- INFORMATION USE
  - Data quality assurance based on comparison between facility reports and facility records/registers
  - Analysis of ART core indicators and facility-level program monitoring indicators: problem identification - solving
  - Capacity-building of care providers in data recording and analysis
  - Reporting to higher levels

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National level data production and information use

- DATA PRODUCTION:
  - Country data warehouse (evtl. Web-based)
  - Establishment of links with global databases (CRIS – COPRS) based on HL7 standards
- INFORMATION USE
  - Analysis of national core indicators: problem identification and actions on ART program policy and planning
  - Reporting to global databases (UN = CRIS; PEPFAR = COPRS)

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Current and potential use of ICT in ART programs

- Patient management
  - EMR system
  - Smart cards
  - Scaling up: continued need for paper based systems
- Facility management
  - Electronic register: data entry from EMR or paper based records
  - Laboratory computerized data systems
  - Logistic supplies computerized data systems
  - Use of PDAs and cell phones for data entry and reporting
- System management
  - Electronic (e-mail) and web-based reporting systems
  - Computerized data base management
  - Data warehousing: ideally should start at district level

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Challenges and threats of ICT

- **Managed by technicians (**often external consultants)
  - Lack of buy-in and ownership by key stakeholders
  - Limited knowledge transfer
  - Inadequate stakeholder participation in key design decisions
- **Insufficient capacity building** to operate and maintain systems
- **Need for interconnectivity and standardization (HL7)**
- **Different resource environment in urban versus rural settings**: difficult for scaling up

  → **Cautious enthusiasm using mix of paper based and computerized systems**

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ART and HMIS: more work needed…

- Establishment of ART patient follow-up systems with standard actions.
- Including community/PLHA participation in home-based care and establish data collection systems
- Establishment of supervisory systems for facility-based ART data quality and use of information (e.g. capacity building in cohort analysis)
- Coordination of data production and analysis between public/NGO/private sectors
- Integration between ARV and TB info systems

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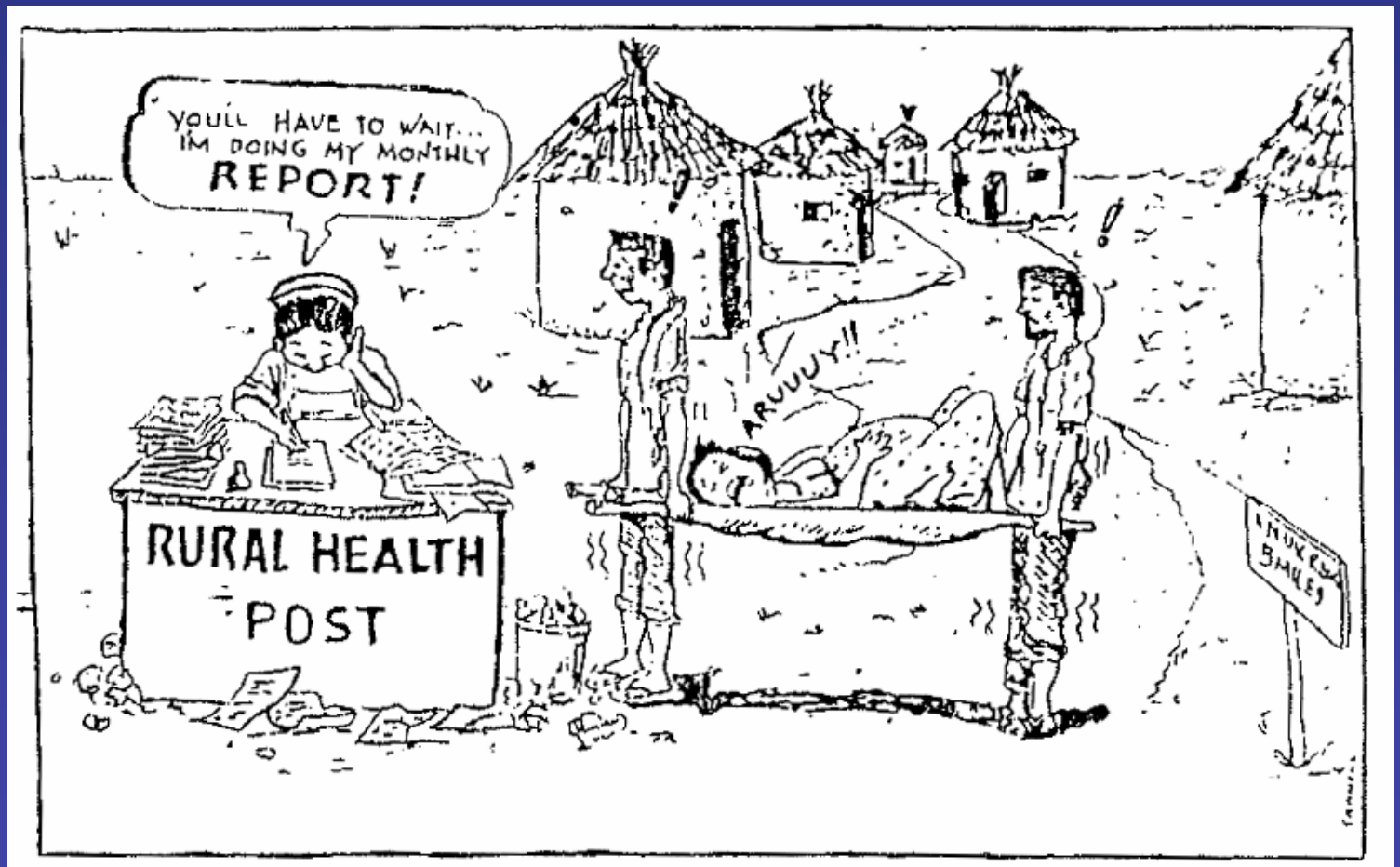
Where we don't want to go with HMIS…



Adapted from Feuerstein (1993)

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Where we don't want to go with ICT…

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Where we really want to get at...

HEALTH

↑

HEALTH SYSTEM

↑

HIS

↑

ICT

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Thank You!

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